STAC Ecosystem Services Workshop
March 16, 2023
Plenary – as prepared for delivery

Good morning, everyone. Thank you for inviting me to join you for day one of your workshop exploring how ecosystem services can inform decision-making throughout the Chesapeake Bay watershed. When I first learned about the topic of this workshop, I knew that I needed to be here to learn from the conversation that was going to take place, because I know the questions raised here and the discussions to follow will inform many policy decisions to come.

At the same time, and as Jeremy and Meg can attest, it made me incredibly nervous to think about what I could possibly share, seven weeks into a new job, that would help open today's conversation.

Since I *am* new here, I'll start by sharing a bit about myself. Two months ago, I moved from Richmond to Annapolis to join the Chesapeake Bay Commission as its new Executive Director, picking up the baton from the incomparable Ann Swanson. I come to the Commission with the perspective of a local watershed advocate and a legislative staffer. I most recently served as the Director of Advocacy for the James River Association in Richmond, working to advance state-level laws and regulations that would restore the health of the James River and its watershed. Before that I worked for Congressman John Sarbanes, who represents Maryland's 4th Congressional district, as his legislative counsel covering several issues including environmental policy and the Chesapeake Bay.

In summary, you have invited a lawyer and a lobbyist, who has only been on the job for fifty-one days, to kick-off today's discussion.

I offer this background as a caveat. I'm still building my ability to bring the historical perspective and Bay-wide point-of-view that the Commission carries. I'm speaking today from my personal experience wearing a couple of different hats. As I work through this transition, it's probably best not to directly attribute my reflections to any of the folks I've served. I'm taking in a lot of new information and letting it expand and change what I know from my experiences to date. At the James River Association, when we were grappling with challenging topics, we liked to give ourselves permission to speak in first draft. Today, you're getting my first draft thoughts as I try to process what I'm learning. But I'm hoping that if I share a few of those first draft thoughts, they'll help you unlock much more polished ideas over the course of the workshop.

The Importance of Science-informed Policy

As I sat down to begin this first draft, I wanted to start by recognizing the importance of today's conversation. As I mentioned at the beginning, I'm excited for STAC to take on this topic, because I know that it will ultimately lead to new and much needed policy opportunities for the Commission and for the Bay as a whole. One of the best attributes of the Chesapeake Bay Partnership and of the Chesapeake Bay Commission, is the commitment to letting science inform policy. The work of STAC, in particular, has been a driving force guiding the Commission's policy work at the state and local level.

I'll give one example that I have no doubt you all know even better than I do. But I share it as an acknowledgement our history together.

The Chesapeake Bay Commission has long appreciated the connection between land use decisions and the health of the Chesapeake Bay. In 2001 and 2010, the Commission co-published policy reports on the importance of the Bay Partnership's land conservation goals. These reports identified strategies, tracked our progress, and proposed more ambitious targets with each new success.

After 2010, as the Bay Program transitioned to a more regulatory-focused approach, driven by the Bay's Total Maximum Daily Load, there were concerns that land conservation goals were at risk of being left behind. It was clear that we would begin to choose our Bay restoration projects, at the state and federal level, based on our ability to attribute quantifiable nutrient and sediment pollution reductions to their implementation. If land conservation could not be properly valued within the Bay Model, the apparatus that we would increasingly rely on for decision-making, it would not retain its high-value role within the Bay Program.

But we couldn't just change the Model and make land conservation count. We needed to know whether the science supported that change. Whether the Bay Model could appropriately account for the nutrient and sediment processing rates of natural landscapes. This inquiry resulted in STAC's 2012 report on "The Role of Natural Landscape Features in the Fate and Transport of Nutrients and Sediment." And one year later, the Bay Commission picked up where STAC left off and issued a policy report in response: "Crediting Conservation: Accounting for the Water Quality Value of Conserved Lands Under the Chesapeake Bay TMDL."

STAC determined that, yes, there is a scientific basis for adjusting the nutrient and sediment processing rates assigned to natural landscapes in the Model to better reflect the influence of certain landscape feature attributes. The Commission took up the question of how. How do we apply this new information about the pollution reduction value of natural landscapes to give land conservation activities credit for their water quality benefits. The Commission's report identified four potential policy changes that would help us to measurably value and verify the contribution that land conservation makes to our TMDL water quality goals.

To me, this interplay between the science and the policy, STAC and the Commission, provides a couple of lessons. First, policy decisions need to be grounded in science. Before we determine how to make a change, we should determine whether the science supports the change. Second, it shows the importance of our decision-making tools in pre-determining our values. With the Bay Model and the TMDL driving so much of our policy and investment decisions, the pollution reduction services of each ecosystem become paramount. But as we will discuss today, there are many other values at play in our communities and for our decision-makers, beyond pollution reduction and total maximum daily loads. There could be economic factors, resilience concerns, public health challenges, even historical and cultural assets at play. Decision-makers need decision-making tools that will incorporate these values, these ecosystem services, in the future. To the extent that today's conversation helps us to identify those tools, and STAC determines that the science supports their use, you can have faith that the Commission will be here to help guide policymakers toward making better use of those tools.

Diversifying our Portfolio

With those lessons as my foundation, I turned my thoughts towards where I thought there could be opportunities to bring more ecosystem services into our decision-making, big and small. And starting with the big decisions, the Bay-wide conversations, I hit upon my first theme. When you're talking about big decisions, big investments, we're always told it's better to diversify. To spread your investments around to many different, carefully chosen and complementary assets to maximize your returns and reduce your risk. And at the risk of using a financial metaphor when banks are so much in the news, ecosystem services can help us, as a watershed, diversify our portfolio.

Looking at the Bay Agreement, as it stands, we are already diversifying. We are spreading our efforts as a watershed across multiple Bay outcomes to achieve a healthy ecosystem. The TMDL has put a finger on the scale, certainly, in drawing a lot of attention to our water quality outcomes, as I just mentioned. Still, I think the principle holds true. And as we approach the 2025 deadline for achieving our Bay agreement goals, we are all taking this opportunity to think about how our investments in that portfolio are doing. Looking back at our progress as a region, we have many outcomes that are on track or completed, and some outcomes that are off track and have fallen behind. But looking forward, are there ways that we can improve on that diversification? Not by adding more outcomes, per se, but by making sure our outcomes, and the strategies we are using to achieve them, are more complementary. That they are working together to maximize the gains we achieve and limit the loss of ground we suffer when any one outcome falls short.

Ecosystem services may help us with this task. Looking at the full complement of ecosystem services provided by an outcome can help us better relate progress in that outcome to gains made across multiple others. To share a few examples: can we link our forested buffer targets to measurably cooler streams and expanded brook trout habitats? Can we strategically set wetlands goals to meet the climate adaptation needs of at-risk communities? Could we measure our oyster reef restoration targets by what they mean in terms of water filtration capacity and nutrient removal? By considering how ecosystem services link these Bay Agreement outcomes together, we can consider how the targets we choose can move more than one outcome forward. If the strategies we are using to achieve one outcome are advancing our progress across multiple outcomes, we're increasing our trajectory that much faster. But if one of our strategies is falling short and not making the gains we anticipated, we will know that progress on that outcome is still being made elsewhere, moving us forward even as we take the time to regroup and adjust. When we keep our goals siloed, we miss the opportunity to translate and multiply their impact across all facets of the Bay restoration.

In a more literal sense, ecosystem services can also diversify our investors. To be successful, we have to find and attract resources to our work. We have never had more resources available for this work than now. At the federal level, we've seen massive funding infusions from the American Rescue Plan Act, the Infrastructure Investment and Jobs Act, and the Inflation Reduction Act, not to mention recent increases in the annual appropriations we rely on each year. States, in turn, have taken the federal funding they've received and the revenue surpluses they've experienced, and bookmarked these dollars for major wastewater projects and landmark investments in agricultural conservation programs. Last year, Pennsylvania placed $220 million in its new Clean Streams Fund. Virginia fully funded its agricultural cost-share program for the first time in the program's history. There are brand new grant programs like

Chesapeake WILD, harnessing federal investments in habitat restoration, and there are corporate partners looking for opportunities to offset their environmental footprint with carbon credits and environmental stewardship. The opportunity is unprecedented. But the need is equally unmatched. Communities throughout our watershed are changing, growing, and aging. They need to meet their water quality permitting requirements, improve aging infrastructure, and prepare for and mitigate the impacts of climate change. We need to tap into every type of funding we can to secure a sustainable future for our watershed. Ecosystem benefits analysis can potentially unlock new sources of funding, growing, and diversifying the portfolio of those investing in the Bay.

Many of the agricultural best management practices that deliver cleaner waters for local streams also improve the resilience of rural lands to climate change, creating new opportunities to use federal investments linked to climate preparedness. Stormwater strategies that promote infiltration and nutrient removal also reduce localized flooding from heavier, flashier rainfall, pulling in resources dedicated to flood resilience. Tree canopy programs in urban communities can mitigate the heat island effect and reduce heat-related public health threats. And protected, forested lands help maintain reliable supplies of clean, plentiful drinking water while sequestering carbon and transforming into biomass, potentially offsetting industry emissions. By linking the many services any single project can provide, we can enlist new allies, harness new funds, layer more resources together, and better prioritize the most cost-effective options.

Bay-wide Buy-in through Localized Targeting

Leaving large-scale investment decisions behind and turning to community-scale buy-in, we know that it will take effort from every state and locality across the watershed to reach our Bay-wide goals. But telling a dairy producer in Lancaster County about the millions of pounds of nitrogen that farms contribute to the Chesapeake each year is not going to make the conservation plan you'd like her to implement more relevant to her quality of life. We have to be able to speak to the local impacts that may be more visible and closer to home. A better understanding of the ecosystem services provided by the buffer that her conservation plan calls for can help close the deal with the dairy farmer. The benefits that a restored trout stream can bring to local recreation and tourism may move a municipality to invest in replacing old undersized culverts with ones ready for heavier storms and better fish passage. When we can target our efforts to meeting local needs and make the change more immediately visible, and measurable, to the people closest to it, we can bring more people on board and get more people excited to be a part of the work.

Better targeting of localized benefits is at the center of the rapid stream delisting model created by Chesapeake and supported by Lancaster Clean Water Partners. They are zeroing in on landowners linked together by a single stream and bringing them together as a community to wholistically implement practices on each of those parcels that target the needs of that specific stream. The hope is that a targeted, localized, community-based approach will show results that are more immediate in time, more immediate in place, and more immediate in relevance for the community's well-being. At the end of the day, less nutrient and sediment pollution will reach that stream and ultimately, the Bay. But the local benefits, and not the Bay, are centered in order to bring the partners to the table, critically important for capturing the attention and investment of our headwater localities.

We need a lot of buy-in from *a lot* of headwater localities. The Chesapeake Bay Commission and the Chesapeake Legal Alliance did a comparison of government structures in Maryland, Virginia, and Pennsylvania. When it comes to statewide water quality goals, Maryland has to muster the collective impact of 24 counties and 157 municipalities. Virginia has 95 counties and 229 cities and towns to pull together. But, Pennsylvania is broken up into 67 counties and a whopping 2,560 cities, boroughs, townships. Being able to identify and communicate the ecosystem services that healthy local streams provide to those municipalities can help mobilize Pennsylvania to continue investing in clean water programs that will ultimately benefit the Chesapeake Bay. It increases the relevance of our work not just for the communities in Pennsylvania's portion of Bay watershed, but for the other 5 major watersheds that reach across the state. And when 70% of Pennsylvania's population lives in one of those other 5 watersheds, you need to show that state-wide policies and investments in clean water will bring local benefits in every community, no matter what watershed they're in, to move enough votes in the General Assembly.

Maximizing Benefits vs. Minimizing Impact

Now, I must admit that I've been avoiding the very first thought that popped into my mind when I was approached to talk about this topic. My first thought was the five full days I spent in a room filled with 41 stakeholders and countless agency officials, grappling with how to mitigate the adverse impacts caused by solar projects disturbing prime agricultural soils and contiguous forest land. Those 41 stakeholders spent hours coming up with 41 different proposals in a laborious process made more confusing by the convoluted hoops we had to jump through to ensure no Freedom of Information laws were broken by any three of us communicating outside the meetings at any one time. And after all that effort, and many many billable hours from the industry representatives, the 717 page summary of our work reported that "to date, the workgroup has failed to reach consensus on any major issue."

Maybe not the best example to offer when trying to inspire confidence ahead of a workshop. But I want to share the scale of what we were trying to do across five days and forty different viewpoints. We were trying to put every ecosystem service provided by our prime farmlands and forests on the table. Water infiltration, aquifer recharge, nutrient reduction, food productivity, habitat connectivity, riparian buffers, carbon sequestration, hunting, hiking, and scenic value We wanted to quantify the value of the land in its current state, and the change in value after the solar development. We wanted to know how the rural economy and food security would be affected. And we wanted it all to be something we could approximate and add up at the very beginning of the process so that communities could be sure they were recouping all of the losses and solar companies could be sure their profits would justify the mitigation cost.

We couldn't come to consensus on what ecosystem services were being impacted, much less find a way to quantify the impact. What's the right way to weigh the benefits of pollinator friendly plants between solar panels against a patch of prime soil that's not in production or a working forest? How do you compensate a farmer for compacted soil? Is it based on the potential for lower yields or the cost of remediation once the panels are removed? Is soil considered disturbed if backhoe runs over it? How about a pickup truck? Do you measure the the footprint of a solar array by the size of the panel or just the posts in the ground? We may never be able to quantify the full scope of ecosystem services and the amount of impact. And if we did, we would continue to fight over whether we over- or underestimated the value.

But at the very least, 41 people – representing solar developers and electric coops, engineering firms and trade associations, the farm bureau, the forestry association, local governments and NGOs – we all sat through presentations and discussions on soil science, high value forests, and outstanding ecological cores. These are concepts that probably don't come up too often in energy regulation conversations, and that certainly weren't talked about when we switched from burning candles to burning coal to burning oil and gas to light our homes. So though we may not have had the application right, the fact that ecosystem services are in the discussion is probably progress.

Throughout the workgoup meetings, the one thing I heard from the local government folks, over and over again, was a plea for more tools so that they could understand their options. How could they make decisions in their comprehensive planning, their zoning and their special use permits that would maximize the benefits of these natural resources and minimize the impacts of the transition to renewables. They need ecosystem services analysis that is easy to access and easy to use as early in the development process as possible, to head off land use conflicts before they begin.

With those tools in place for localities, perhaps we can take them one step further, and identify lands with more marginal ecosystem services and use policy initiatives to make them more attractive for developers, so that they avoid prime farms and forests altogether. And for landowners, can we use them to maximize the value of the ecosystems on their property for them and for their community, so that economic conditions aren't weighing so heavily towards development?

Applying an Equity and Inclusion Lens

My final reflection brings me down to ecosystems services at perhaps its most local level -- 8 trees in a single neighborhood -- and looks at how a better understanding of ecosystem services can help advance our environmental justice and equity goals. At one level, it's clear that not all communities have access to healthy, natural spaces that provide ecosystem services. Environmental justice communities already suffer from systemic degradation of their air, water, and land, limiting any services those resources may have provided. The lack of green spaces and proliferation of heat islands in urban communities is an often-cited example. In Richmond, Virginia, local organizations and community leaders have highlighted the impact that unjust housing policies have had in concentrating low-income communities and communities of color in neighborhoods with lots of asphalt and very few trees. These neighborhoods suffer from a lack of shade and poor stormwater drainage, that, when coupled with poor infrastructure from inadequate public investment, contribute to significant health and safety impacts.

I'm not telling you anything new. As scientists, you understand these linkages better than I do. But I do want to share one anecdote that recently gave me a new perspective on this interplay between ecosystem services and environmental justice. Mosby Court is one of Richmond's six largest public housing neighborhoods. In December, residents raised the alarm that many of the neighborhood's trees, some as much as a century old, were being cut down with no explanation. They wanted answers, and what they eventually heard from Richmond's Redevelopment and Housing Authority was incredibly disheartening. The Authority said that the trees were cut as part of a curb appeal improvement request" because their branches were adversely impacting downspouts, and their roots were making it hard to grow grass. In the authority's calculation, the trees were an ecosystem disservice to the community. But they hadn't bothered to ask the Mosby community what benefits they were actually receiving from the trees. If they

had, they would have heard that the trees were a source of community pride and a place for gathering. That they were providing much needed shade to kids that wanted to play outside during the summer. That they had the capacity to be community memorials to help process the trauma and violence many of the community members had experienced.

Thankfully, the community's quick mobilization protected 30 more trees that were planned to come down. The Authority's CEO pledged to pause any further cutting until after the community's voices were heard. But that's a conversation that should have happened before the first eight trees were felled.

To me, the Mosby Court community's experience is a really critical reminder that we can't have a full picture of the services a space or a resource provides until you ask the community it serves. A scientific model might have measured how much water the trees' roots could soak up and compared it against any impacts on the gutter systems. It might have estimated how much more grass or the different sorts of shrubs that could have sprung up had the tree never been there. It might have even told the Housing Authority how many more trips to the emergency room for heat-related illnesses you could expect without shade for the children. But it wouldn't have told you about the community gatherings that took place under those trees each spring. It wouldn't have told you about the celebrations of life hosted under the branches to help process the grief of loss. And it certainly wouldn't have measured the sense of pride and belonging that those trees represented for that neighborhood.

We must bring communities into the conversation about these spaces and these services from the very beginning. Only they have first-hand knowledge about the services that they are experiencing, whether those are qualitative services we haven't quantified or services that we have quantified but that aren't actually being felt by the community. Simply telling a neighborhood that these are the values this planned conservation project will bring you isn't enough. We have to fully understand and account for what may be lost in any change. We have to ensure that any new benefits will equitably accrue across the entire community, and we can't lose sight of the fact that no community will realize the full benefits of these projects or these places if their most immediate and acute needs are not being met.

In Conclusion

This is the point in a final draft where I would wrap up these reflections in a riveting and poignant takeaway. Maybe I'll learn how to do that by Day 500. But I don't have that on Day 51. I think that's *ok* at this point in the conversation, and with the rest of today's speakers, who have thought much more deeply about ecosystem services than I. Hopefully it's enough to say that we could use your help at every scale of decision-making, whether we're making the hundreds of connections across our big-picture outcomes, or linking the benefits of 8 trees to a single neighborhood. We need your help breaking Bay-wide needs down to their most localized benefits so that we can reach every locality across the Bay. And we need your help understanding the value of what we already have, what we might lose, and what we could gain, so that we can leverage every single dollar from every type of funding stream to get our projects paid for.

Thank you again for letting me join you today. I'm really looking forward to getting to know you and learning from you all.